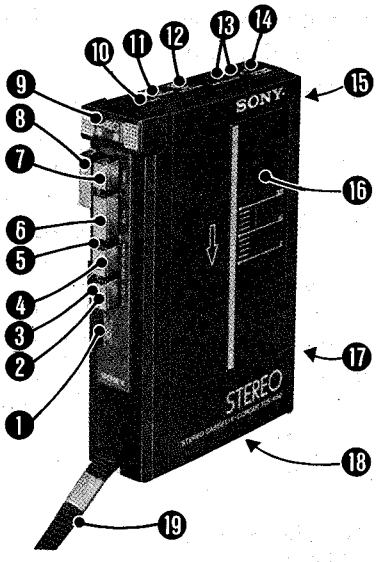
TCS-450

SERVICE MANUAL



US Model
Canadian Model
AEP Model
UK Model
E Model

SPECIFICATIONS

Recording system	4-track 2-channel stereo
Speaker	Approx. 4.5 cm ($1^{13}/_{16}$ inches) dia.
Fast winding time	Approx. 2min. with Sony HF60 cassette
Frequency response	50–10,000 Hz 40–14,000 Hz (playback)
Tape speed	4.8 cm/sec. ($1^{7}/_{8}$ ips) $^{+20}_{-10}$% adjustable in playback
Input	Microphone input jack (stereo minijack) sensitivity 0.2 mV (–72 dB) for low impedance microphone
Output	Headphones (stereo minijack) load impedance 8–300 ohms
Power output	Headphones: 20 mW + 20 mW (32 ohms, at 10% harmonic distortion) Speaker: 200 mW (6 ohms, at 10% harmonic distortion)
Power requirments	3 V dc Two IEC designation R6 batteries (size AA) DC IN 3 V jack accepts: US, Canadian model: 120V ac, 60Hz AEP model: 220V ac, 50Hz UK model: 240V ac, 50Hz E model: 110, 120 or 220V ac, 50/60Hz optional Sony EBP-500 battery case for use on two IEC designation R20 batteries (size D) optional Sony DCC-70 car battery cord for use with 12 V car battery

Battery life

Batteries	Recording	Playback (speaker)	Playback (headphones)
Sony SUM-3 (NS) New Super batteries	3.5	3	3.5
Sony AM3 alkaline batteries	7.5	6	7

Tape Transport Mechanism Type	MT-450-06

Dimensions	Approx. 90.8 × 133.4 × 32.5 mm (w/h/d) ($3^{5}/_{8} \times 5^{3}/_{8} \times 1^{5}/_{16}$ inches) incl. projecting parts and controls
Weight	Approx. 300 g (10.6 oz) incl. batteries, not incl. other accessories

PARTS IDENTIFICATION

❶ SPEED CONTROL
❷ ▼▼ FF/CUE (fast forward/cue) button
❸ ▮▮ PAUSE switch
❹ ▲▲ REW/REVIEW (rewind/review) button
❺ PB EQ (playback equalizer) selector
❻ ▼ PLAY (playback) button
❼ ● REC (record) button
❽ STOP/EJECT button
❾ Built-in one-point stereo microphone
❿ REC/BATT (record/battery) indicator
⓫ PHONES (headphones) jack (stereo minijack)
⓬ MIC (microphone) (PLUG IN POWER) jack
⓭ TAPE COUNTER and reset button
⓮ VOLUME control
⓯ DC IN 3 V (external power input) jack (right side)
⓰ Cassette compartment
⓱ Battery compartment (rear)
⓲ Speaker (rear)
⓳ Carrying strap

MICROFILM

STEREO CASSETTE-CORDER

SONY®

TC

SERVICING NOTE

Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

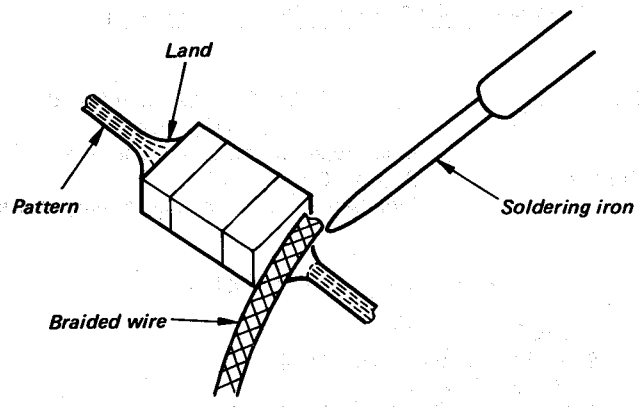
Precautions for replacement

1. **Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.**
2. **Never re-use a disconnected chip component. Dispose of all old chip components.**
3. **To protect the chip component, heating time for attaching the component should be within 3 seconds.**

○ Removing chip components

(1) Removing solder at electrode

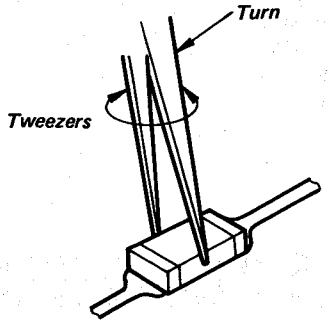
Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off.

Never re-use a disconnected chip component.



(3) Smoothing the soldered surface

After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

○ Connecting chip components

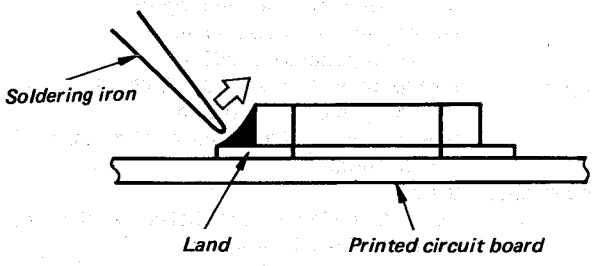
The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

(1) Applying solder to land on one side

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.

(2) Speedy soldering

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



(3) Speedy soldering of electrode on the other side

Solder the electrode on the other side in the same way as in (2) above.

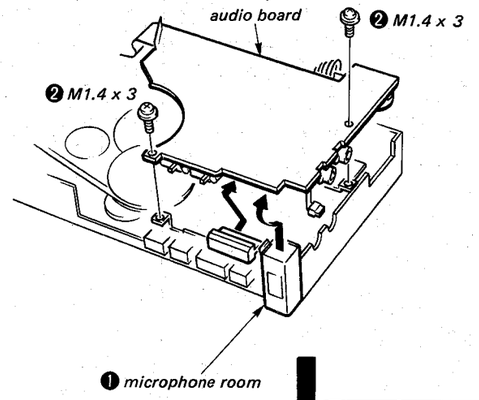
SECTION 1
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

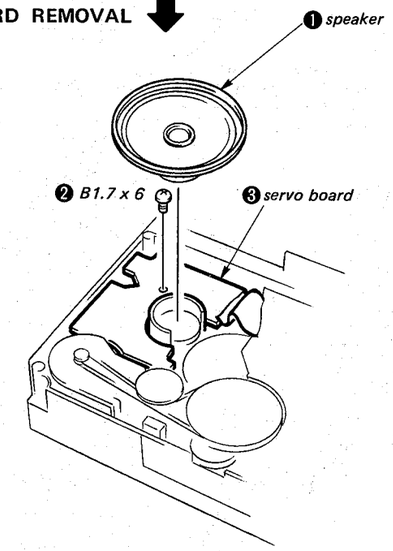
REAR CABINET REMOVAL

Remove four B1.7 x 8 screws and one M1.7 x 5 screw.

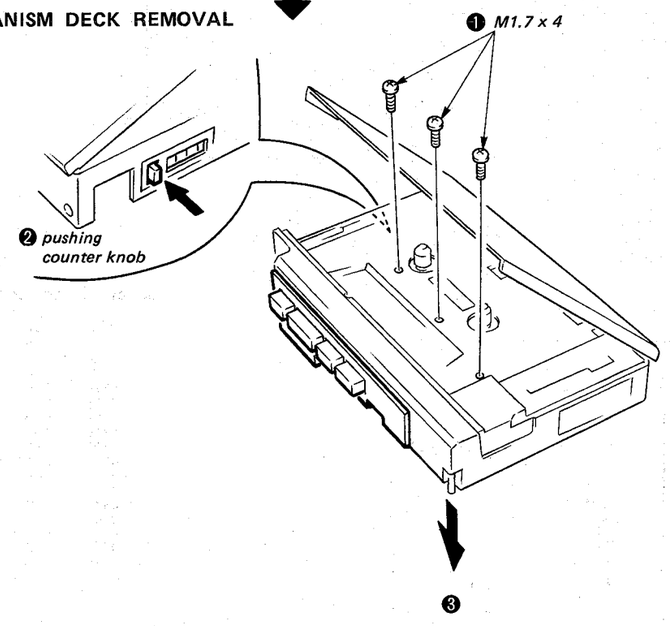
AUDIO BOARD REMOVAL



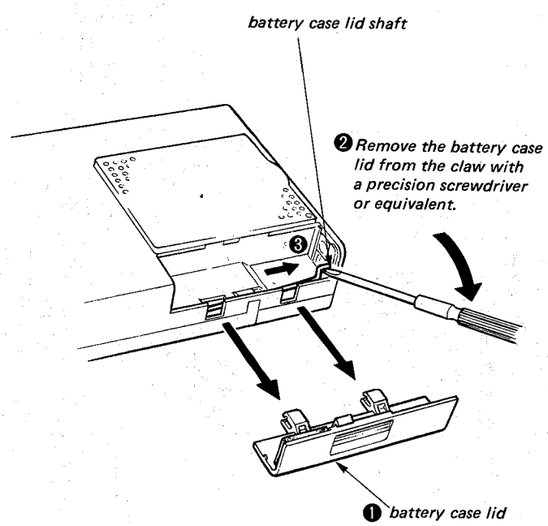
SERVO BOARD REMOVAL

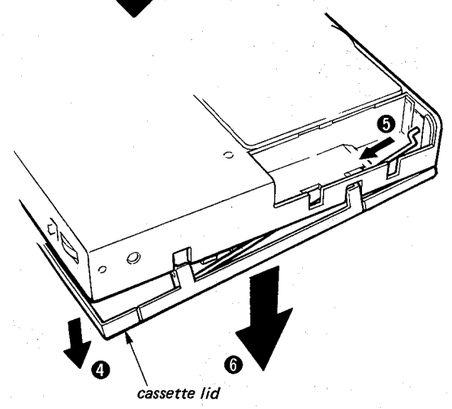


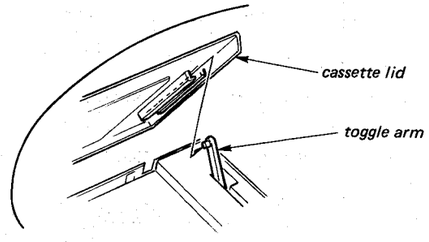
MECHANISM DECK REMOVAL



CASSETTE LID REMOVAL


battery case lid shaft
❷ Remove the battery case lid from the claw with a precision screwdriver or equivalent.
❸
❶ battery case lid





Caution for installation:
Assemble after inserting the claw of toggle arm into the cassette lid.

SECTION 2
MECHANICL ADJUSTMENT

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

power supply voltage : 3V dc
SPEED CONTROL knob : center click

Torque Measurement

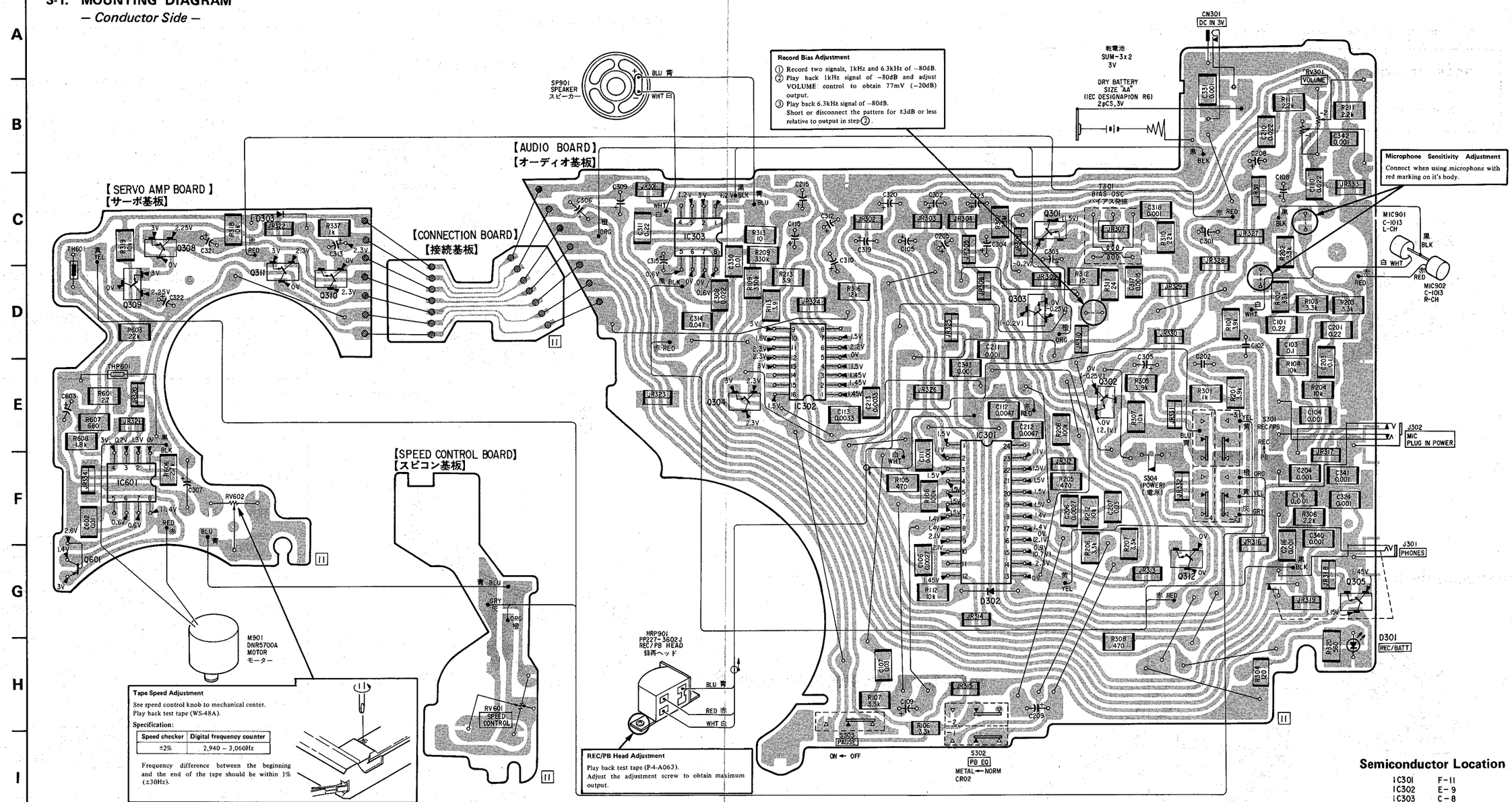
Torque	Meter Reading	Torque Meter
Forward	22 – 45 g-cm (0.3 – 0.62 oz-inch)	CQ-102C
Fast Forward and Rewind	67.5 – 95 g-cm (0.93 – 1.31 oz-inch)	CQ-201B
Back Tension	2 – 4 g-cm (0.028 – 0.055 oz-inch)	CQ-102C

Tape Tension Measurement

Meter	Meter Reading
CQ-403A	130 – 250 g (4.59 – 8.83 oz)

3-1. MOUNTING DIAGRAM

— Conductor Side —



Record Bias Adjustment

① Record two signals, 1kHz and 6.3kHz of −80dB.
② Play back 1kHz signal of −80dB and adjust VOLUME control to obtain 77mV (−20dB) output.
③ Play back 6.3kHz signal of −80dB.
Short or disconnect the pattern for ±3dB or less relative to output in step②.

Microphone Sensitivity Adjustment

Connect when using microphone with red marking on it's body.

Tape Speed Adjustment

See speed control knob to mechanical center.
Play back test tape (WS-48A).

Specification:

Speed checker	Digital frequency counter
±2%	2,940 – 3,060Hz

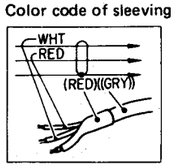
Frequency difference between the beginning and the end of the tape should be within 1% (±30Hz).

REC/PB Head Adjustment

Play back test tape (P-4-A063).
Adjust the adjustment screw to obtain maximum output.

Note:

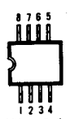
- Color code of sleeving over the end of the jacket.



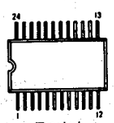
- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.

● Semiconductor Lead Layouts

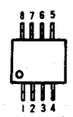
AN6612S



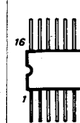
CX20023



NJM2073M



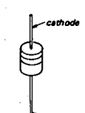
TA7688F-SO



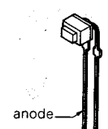
2SB624-BV4
2SC2712-G
2SD596
DTA114YK
DTC114YK

2SB740

1SS119



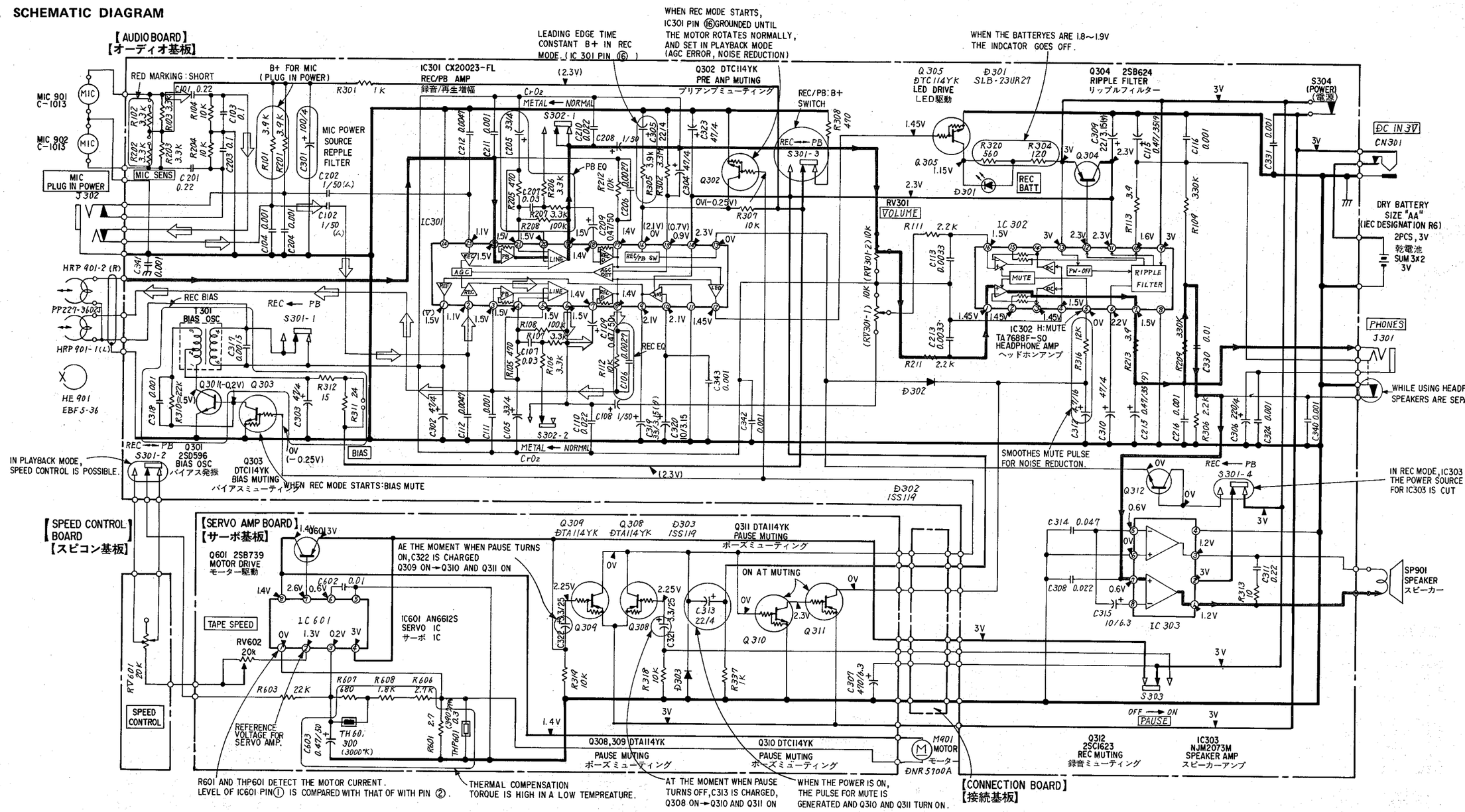
SLB-23UR27



Semiconductor Location

IC301	F-11
IC302	E-9
IC303	C-8
IC601	F-2
Q301	C-11
Q302	E-12
Q303	D-11
Q304	E-8
Q305	G-15
Q308	C-2
Q309	D-2
Q310	D-4
Q311	D-3
Q312	G-13
Q601	G-1
D301	H-15
D302	G-11
D303	C-13

3-2. SCHEMATIC DIAGRAM


【AUDIO BOARD】
【オーディオ基板】
RED MARKING : SHORT
B+ FOR MIC (PLUG IN POWER)
MIC 901 C-1013
MIC 902 C-1013
MIC PLUG IN POWER J302
MIC SENS
MIC POWER SOURCE REPPLE FILTER
IC301 CX20023-FL REC/PB AMP 録音/再生増幅
LEADING EDGE TIME CONSTANT B+ IN REC MODE. (IC 301 PIN ⑯)
WHEN REC MODE STARTS, IC301 PIN ⑯ GROUNDED UNTIL THE MOTOR ROTATES NORMALLY, AND SET IN PLAYBACK MODE (AGC ERROR, NOISE REDUCTION)
Q302 DTC114YK PRE ANP MUTING プリアンプミューティング
REC/PB B+ SWITCH
WHEN THE BATTERYES ARE 1.8~1.9V THE INDCATOR GOES OFF.
Q305 DTC114YK LED DRIVE LED駆動
Ð301 SLB-23UR27
Q304 2SB624 RIPPLE FILTER リップルフィルター
S304 (POWER) 電源
DC IN 3V
CN301
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2PCS, 3V 乾電池 SUM 3x2 3V
RV301 VOLUME
IC302 H:MUTE TA7688F-SO HEADPHONE AMP ヘッドホンアンプ
RIPPLE FILTER
PHONES J301
WHILE USING HEADPHONES, SPEAKERS ARE SEPARATED.
HRP 901-2 (R)
PP227-3602
HRP 901-1 (L)
HE 901 EBF5-36
REC BIAS
IC301 BIAS OSC
REC ⟷ PB S301-1
Q301 2SD596 BIAS OSC バイアス発振
Q303 DTC114YK BIAS MUTING バイアスミューティング
WHEN REC MODE STARTS: BIAS MUTE
IN PLAYBACK MODE, SPEED CONTROL IS POSSIBLE.
REC EQ
S302-1 S302-2 METAL NORMAL CrO2
SMOOTHES MUTE PULSE FOR NOISE REDUCTON.
IN REC MODE, IC303 THE POWER SOURCE FOR IC303 IS CUT
Ð302 1SS119
【SPEED CONTROL BOARD】
【スピコン基板】
【SERVO AMP BOARD】
【サーボ基板】
Q601 2SB739 MOTOR DRIVE モーター駆動
IC601 AN6612S SERVO IC サーボ IC
TAPE SPEED
RV602 20k
SPEED CONTROL
REFERENCE VOLTAGE FOR SERVO AMP.
AE THE MOMENT WHEN PAUSE TURNS ON, C322 IS CHARGED Q309 ON→Q310 AND Q311 ON
Q309 DTA114YK
Q308 DTA114YK
Ð303 1SS119
Q311 DTA114YK PAUSE MUTING ポーズミューティング
ON AT MUTING
Q310
Q311
Q308,309 DTA114YK PAUSE MUTING ポーズミューティング
Q310 DTC114YK PAUSE MUTING ポーズミューティング
M901 MOTOR モーター Ð NR5700A
R601 AND THP601 DETECT THE MOTOR CURRENT. LEVEL OF IC601 PIN① IS COMPARED WITH THAT OF WITH PIN ②.
THERMAL COMPENSATION TORQUE IS HIGH IN A LOW TEMPREATURE.
AT THE MOMENT WHEN PAUSE TURNS OFF, C313 IS CHARGED, Q308 ON→Q310 AND Q311 ON
WHEN THE POWER IS ON, THE PULSE FOR MUTE IS GENERATED AND Q310 AND Q311 TURN ON.
【CONNECTION BOARD】
【接続基板】
Q312 2SC1623 REC MUTING 録音ミューティング
IC303 NJM2073M SPEAKER AMP スピーカーアンプ
SP901 SPEAKER スピーカー
OFF ⟶ ON PAUSE

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▬▶ : playback signal path.
  ⇨ : record signal path.
- ▬ : B+ bus.
- ▭ : adjustment for repair.
- Power voltage is 3V and fed with regulated dc power supply from battery terminal.
  Voltages are dc with respect to ground in PLAY mode.
  ( ): REC
  Voltage variations may be noted due to normal production tolerances.

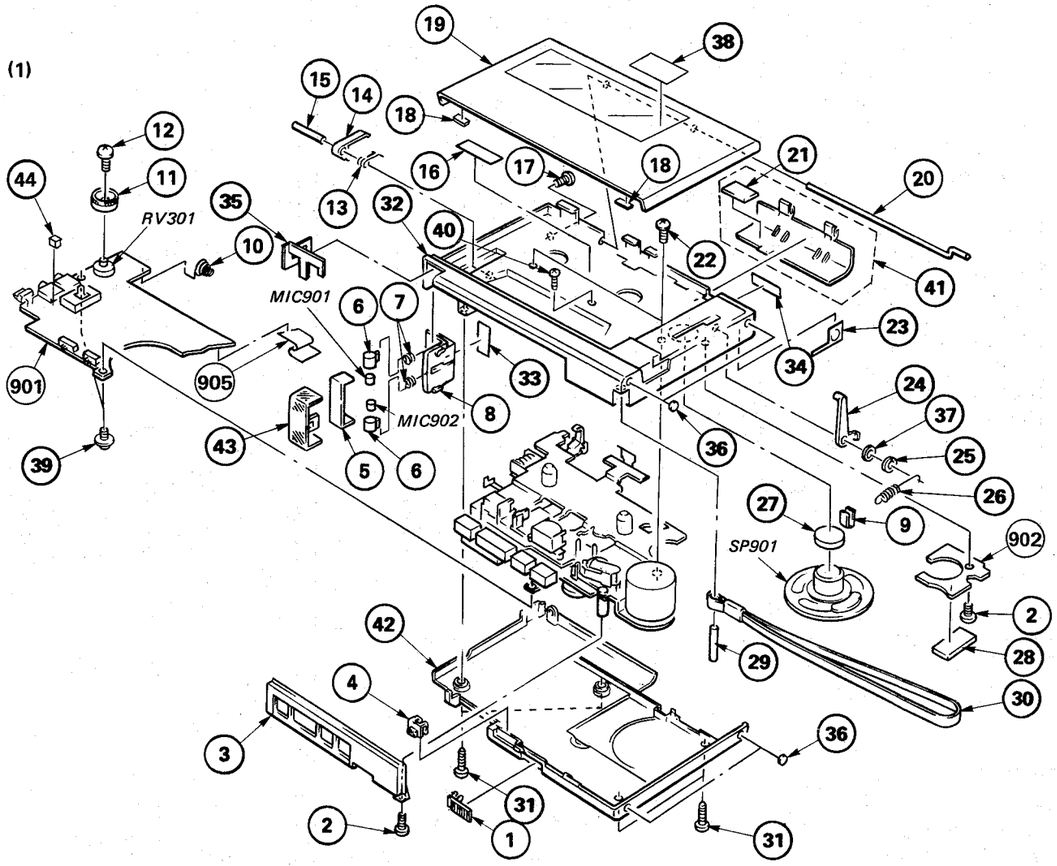
- Switch

Ref. No.	Switch	Position
S301	REC/PB	PB
S302	PB, EQ	NORMAL
S303	PAUSE	OFF
S304	POWER	ON

SECTION 4
EXPLODED VIEWS

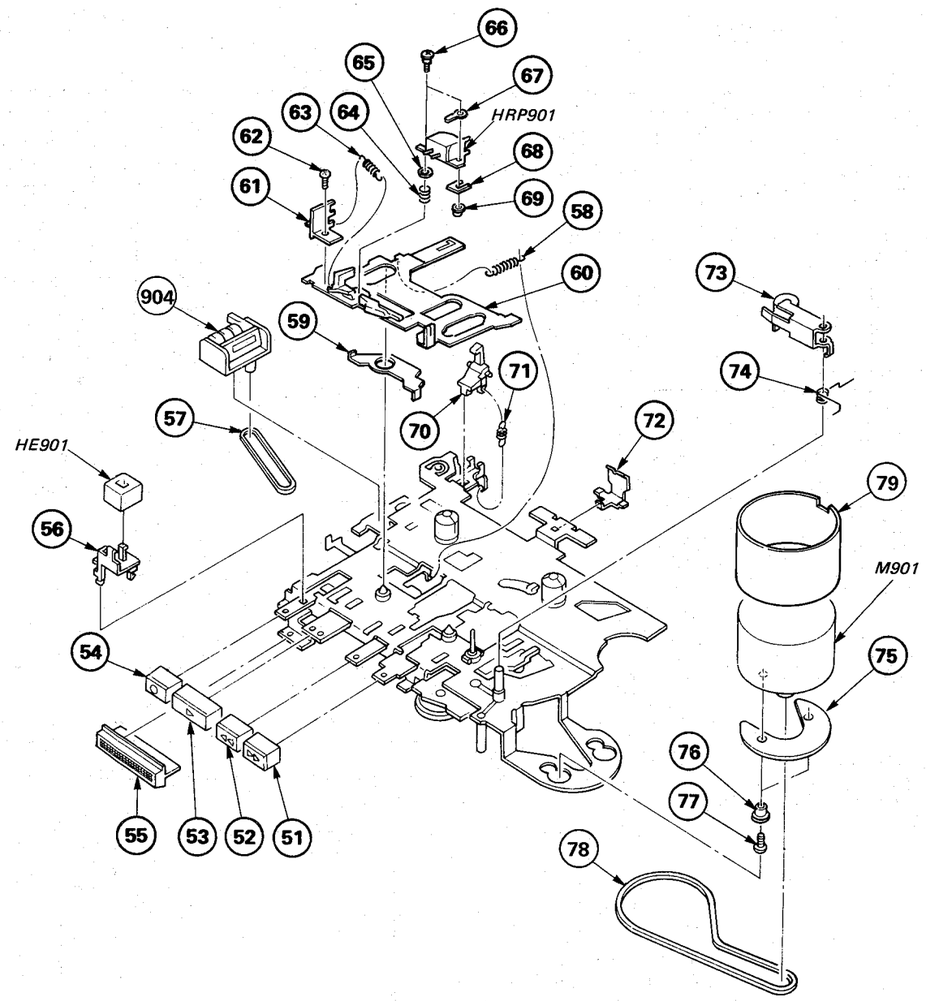
NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

(1)



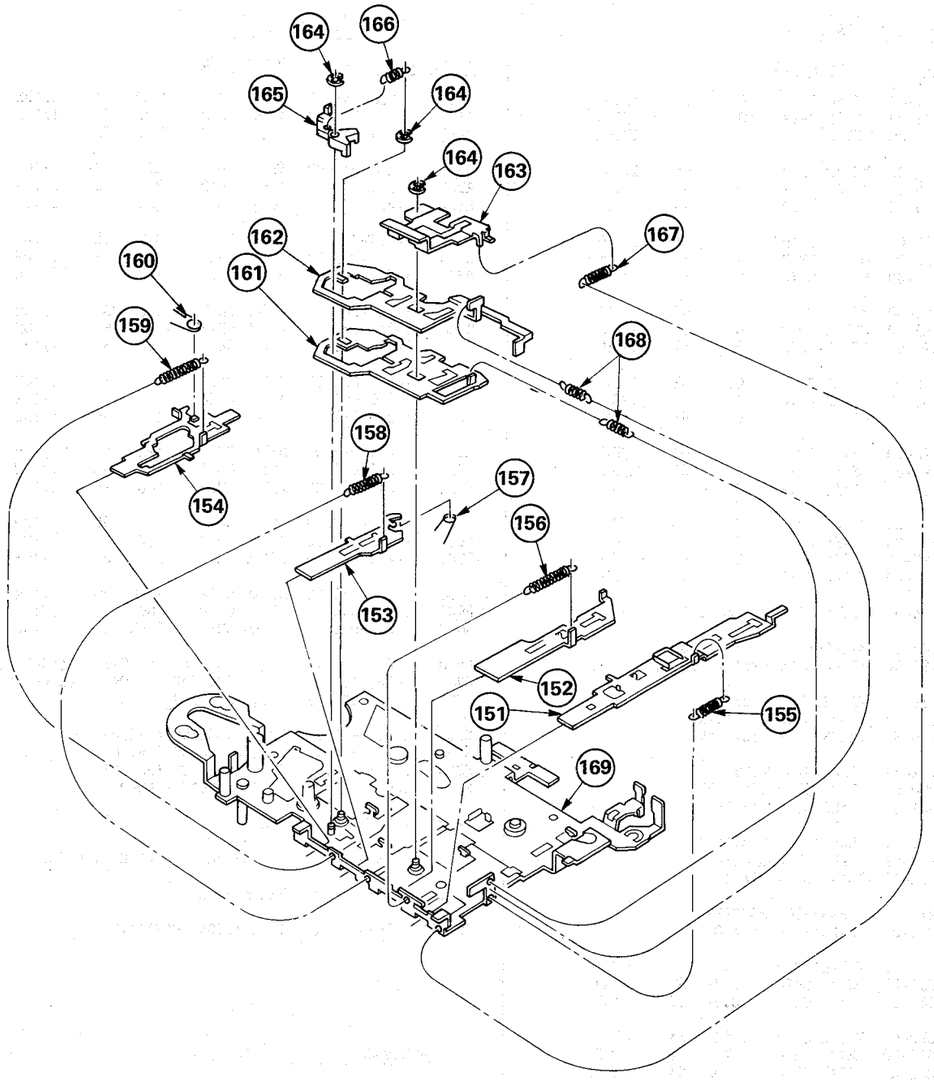
No.	Part No.	Description	Remarks
1	3-318-227-01	KNOB, PAUSE	
2	3-318-203-01	SCREW (B 1.7X6), TAPPING	
3	X-3313-513-1	PANEL ASSY, CONTROL	
4	3-313-555-11	KNOB, SELECTION	
5	*3-313-550-01	WINDSCREEN	
6	3-313-548-01	HOLDER, M	
7	3-313-547-01	SPRING	
8	3-313-558-01	ROOM, MICROPHONE	
9	3-831-441-11	CUSHION (B)	
10	3-318-210-01	SPRING	
11	3-313-556-01	KNOB, VOL	
12	7-627-552-47	SCREW, PRECISION +P 1.7X4	
13	3-318-215-01	SPRING	
14	3-321-022-01	LEVER, EJECT	
15	3-703-357-06	PIN, PARALLEL (DIA. 1.6X14)	
16	3-578-101-11	PLATE, ORNAMENTAL	
17	3-318-204-71	SCREW (M1.7X5), TAPPING	
18	3-831-441-XX	CUSHION	
19	X-3313-505-1	LID ASSY, CASSETTE	
20	*3-313-552-01	SHAFT, BATTERY CASE LID	
21	9-911-815-01	CUSHION	
22	3-318-204-91	SCREW (M1.7X4), TAPPING	
23	3-318-209-01	TERMINAL BOARD, PLUS	
24	3-318-214-01	ARM, TOGGLE	
25	3-318-323-01	RING, RETAINING (3)	
26	3-318-347-01	SPRING, TENSION	
27	9-911-844-XX	CUSHION, SPEAKER	
28	9-911-815-01	CUSHION	
29	3-318-322-01	SHAFT, STRAP	
30	3-320-908-01	STRAP, HAND	
31	3-318-203-31	SCREW (B1.7X8), TAPPING	
32	3-313-560-11	CABINET (FRONT)	
33	3-831-441-XX	CUSHION,CABINET UPPER 10X7X0.3	
34	3-527-213-00	LABEL, SERIAL NUMBER	
35	3-313-563-01	PAPER, SHIELD, LED	
36	3-305-454-00	FOOT, RUBBER	
37	3-701-439-11	WASHER	
38	3-703-710-01	STICKER, SONY SYMBOL (12)	
39	3-313-567-01	SCREW (M1.4X3) TAPPING, PWH	
40	3-318-204-91	SCREW (M1.7X4), TAPPING	
41	X-3313-511-1	LID ASSY, BATTERY CASE	
42	X-3313-512-1	CABINET REAR ASSY	
43	X-3313-510-1	MIC COVER	
44	9-911-839-XX	SPACER, RUBBER	
901	A-3015-387-A	PC BOARD ASSY, AUDIO	
902	A-3015-388-A	PC BOARD ASSY, SERVO	
905	1-616-835-11	PC BOARD, CONECTION	
MIC901	8-814-185-00	MICROPHONE UNIT (C-1013)	
MIC902	8-814-185-00	MICROPHONE UNIT (C-1013)	
SP901	1-503-552-11	SPEAKER	

(2)



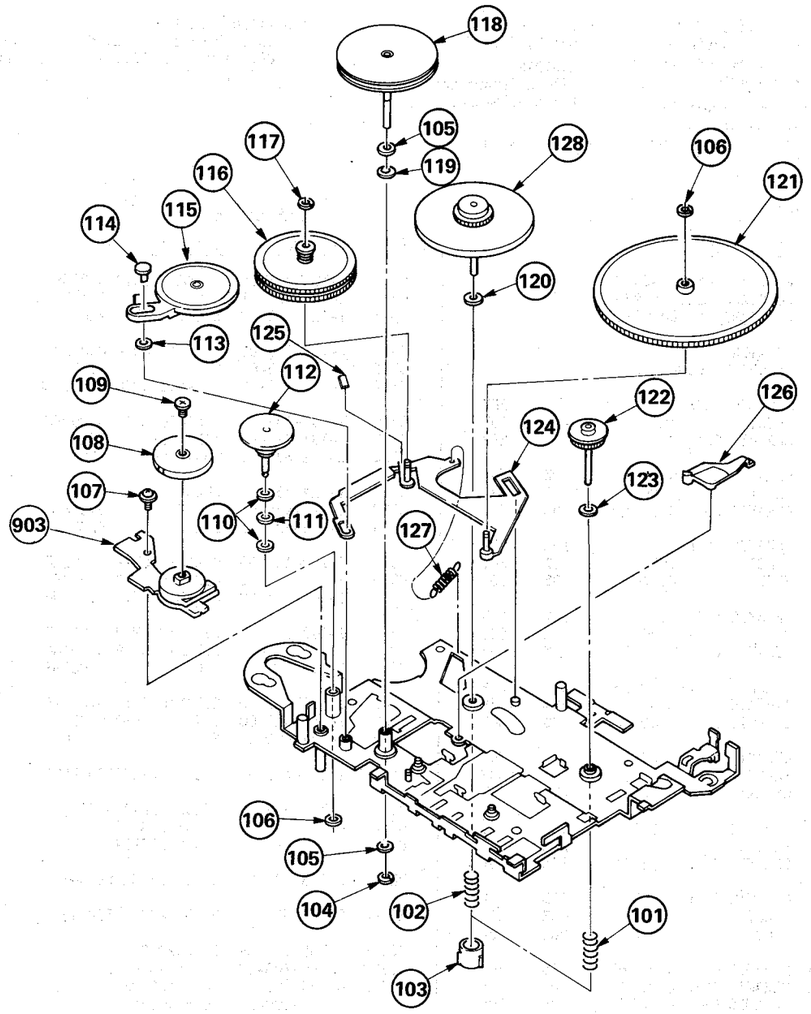
No.	Part No.	Description	Remarks
51	3-318-223-11	BUTTON, FF	
52	3-318-228-11	BUTTON, REW	
53	3-318-222-11	BUTTON, PLAY	
54	3-318-221-11	BUTTON, REC	
55	3-318-355-01	BUTTON, STOP	
56	3-318-285-01	BRACKET, ERASE HEAD	
57	3-318-239-01	BELT	
58	3-565-927-00	SPRING, TENSION	
59	*3-318-267-01	LEVER, CR	
60	X-3318-222-1	CHASSIS ASSY, HEAD	79
61	3-318-287-01	GUIDE, TAPE	
62	7-627-552-07	SCREW, PRECISION +P 1.7X2.5	
63	3-318-238-01	SPRING, TENSION	
64	3-318-237-01	SPRING, COMPRESSION	
65	7-688-001-01	W 2, SMALL	
66	3-318-240-01	SCREW (1.4), SPECIAL	
67	7-623-505-01	LUG, 2	
68	3-578-138-01	SEAM (t=0.1)	
	3-578-138-11	SEAM (t=0.2)	
	3-578-138-21	SEAM (t=0.3)	
69	3-318-309-01	SPACER, HEAD	
70	3-318-286-01	LEVER, ERASING PROTECTION	
71	3-318-336-01	SPRING, TENSION	
72	3-318-269-01	SPRING	
73	A-3110-010-A	PINCH LEVER ASSY	
74	3-318-275-01	SPRING	
75	3-318-254-01	CUSHION, MOTOR	
76	*3-318-310-01	COLLAR, MOTOR	
77	7-627-552-67	SCREW, PRECISION +P 1.7X4.5	
78	3-319-030-01	BELT	
79	*3-313-564-01	PLATE, SHIELD	
904	1-548-541-31	COUNTER	
HE901	8-658-096-02	HEAD, ERASE EBF5-36	
HRP901	8-825-507-01	HEAD (PP227-3602J)	
M901	8-835-104-01	MOTOR, DC (DNR-5700A)	

(3)



No.	Part No.	Description	Remarks
101	3-318-334-01	SPRING, COMPRESSION	
102	3-318-241-01	SPRING, COMPRESSION	
103	3-306-836-02	CAP, REEL, T	
104	3-318-236-01	WASHER, POLY, SLIT	
105	3-701-437-01	WASHER	
106	3-570-615-00	POLY-WASHER (DIA.1.2)	
107	3-318-201-21	SCREW (B) (1.4X5), TAPPING	
108	3-318-379-01	KNOB, SPEED CONTROL	
109	3-892-318-00	SCREW, SMALL	
110	3-547-734-00	WASHER	
111	3-701-436-01	WASHER, 1.6 (t=0.13)	
	3-701-436-11	WASHER, 1.6 (t=0.25)	
112	X-3319-004-1	WHEEL ASSY, REVERSE	
113	3-827-323-11	WASHER (DIA. 3.1)	
114	3-318-324-01	BUSHING, IDLER LEVER	
115	X-3318-210-1	LEVER ASSY, FWD IDLER	
116	X-3318-207-1	GEAR (A) ASSY, FR	
117	3-578-265-11	WASHER, STOPPER	
118	X-3318-211-1	FLYWHEEL ASSY	
119	3-545-715-00	WASHER	
120	3-701-437-41	WASHER	
121	3-318-265-01	GEAR (B), FR	
122	X-3318-204-1	GEAR ASSY, REW	
123	3-701-437-21	WASHER	
124	X-3318-208-1	LEVER ASSY, FR	
125	3-831-441-XX	CUSHION	
126	3-318-288-01	ARM, FF	
127	3-318-243-01	SPRING, TENSION	
128	X-3325-619-1	CLUTCH ASSY	
903	*1-616-834-11	PC BOARD, SPEED CONTROL	

(4)



No.	Part No.	Description	Remarks
151	*3-318-289-11	LEVER, REC	
152	*3-318-290-01	LEVER, PLAY	
153	3-318-292-01	LEVER, REW	
154	3-318-291-01	LEVER, FR	
155	3-318-247-01	SPRING, TENSION	
156	3-318-246-01	SPRING, TENSION	
157	3-318-277-01	SPRING, REW	
158	3-325-683-01	SPRING, TENSION	
159	3-318-250-01	SPRING, TENSION	
160	3-318-276-01	SPRING	
161	*3-318-294-01	PLATE, LOCK	
162	3-318-300-01	LEVER, SWITCH	
163	*3-318-293-01	LEVER, STOP	
164	7-624-101-01	RING, RETAINING E-1.2	
165	3-318-296-01	LEVER, SHUT-OFF	
166	3-318-351-01	SPRING, TENSION	
167	3-547-669-00	SPRING, TENSION	
168	3-318-248-01	SPRING, TENSION	
169	X-3313-507-1	CHASSIS ASSY, MECHANICAL	

TCS-450

SECTION 5
ELECTRICAL PARTS LIST

NOTE:
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	A-3015-387-A	PC BOARD ASSY, AUDIO			
902	A-3015-388-A	PC BOARD ASSY, SERVO			
903	*1-616-834-11	PC BOARD, SPEED CONTROL			
904	1-548-541-31	COUNTER			
905	1-616-835-11	PC BOARD, CONECTION			
C101	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C102	1-124-499-11	ELECT	1MF	20%	50V
C103	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C104	1-163-205-00	CERAMIC CHIP	0.001MF	10%	50V
C105	1-124-431-00	ELECT	33MF	20%	4V
C106	1-163-014-00	CERAMIC CHIP	0.0027MF	10%	50V
C107	1-163-810-00	CERAMIC CHIP	0.03MF	10%	25V
C108	1-124-438-00	ELECT	1MF	20%	50V
C109	1-124-465-00	ELECT	0.47MF	20%	50V
C110	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C111	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C112	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C113	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C115	1-131-406-81	TANTALUM	0.47MF	20%	35V
C116	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C201	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C202	1-124-499-11	ELECT	1MF	20%	50V
C203	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C204	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C205	1-124-431-00	ELECT	33MF	20%	4V
C206	1-163-014-00	CERAMIC CHIP	0.0027MF	10%	50V
C207	1-163-810-00	CERAMIC CHIP	0.03MF	10%	25V
C208	1-124-438-00	ELECT	1MF	20%	50V
C209	1-124-465-00	ELECT	0.47MF	20%	50V
C210	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C211	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C212	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C213	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C215	1-131-406-81	TANTALUM	0.47MF	20%	35V
C216	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C301	1-124-433-00	ELECT	100MF	20%	4V
C302	1-124-432-00	ELECT	47MF	20%	4V
C303	1-124-432-00	ELECT	47MF	20%	4V
C304	1-124-432-00	ELECT	47MF	20%	4V
C305	1-124-430-00	ELECT	22MF	20%	4V
C306	1-123-827-00	ELECT	220MF	20%	4V
C307	1-123-298-00	ELECT	470MF	20%	6.3V
C308	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C309	1-131-391-00	TANTALUM	22MF	20%	3.15V
C310	1-124-432-00	ELECT	47MF	20%	4V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C311	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C312	1-124-461-11	ELECT	4.7MF	20%	16V
C313	1-124-430-00	ELECT	22MF	20%	4V
C314	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C315	1-124-435-00	ELECT	10MF	20%	6.3V
C317	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C318	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C319	1-131-392-00	TANTALUM	33MF	20%	3.15V
C320	1-131-389-00	TANTALUM	10MF	20%	3.15V
C321	1-124-436-00	ELECT	3.3MF	20%	25V
C322	1-124-436-00	ELECT	3.3MF	20%	25V
C323	1-124-432-00	ELECT	47MF	20%	4V
C324	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C330	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C331	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C340	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C341	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C342	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C343	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C602	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C603	1-124-465-00	ELECT	0.47MF	20%	50V
CN301	1-507-723-00	JACK, EXTENTION POWER			
D301	8-719-908-16	DIODE SLB-23UR27			
D302	8-719-911-19	DIODE 1SS119			
D303	8-719-911-19	DIODE 1SS119			
HE901	8-658-096-02	HEAD, ERASE EBF5-36			
HRP901	8-825-507-01	HEAD (PP227-3602J)			
IC301	8-759-907-36	IC CX20023			
IC302	8-759-205-43	IC TA7688F-SO			
IC303	8-759-701-02	IC NJM2073M			
IC601	8-759-400-12	IC AN6612S			
J301	1-562-785-11	JACK (PHONE)			
J302	1-507-999-11	JACK (MIC)			
JR301	1-216-295-00	METAL CHIP	0	5%	1/10W
JR302	1-216-295-00	METAL CHIP	0	5%	1/10W
JR303	1-216-295-00	METAL CHIP	0	5%	1/10W
JR304	1-216-295-00	METAL CHIP	0	5%	1/10W
JR305	1-216-295-00	METAL CHIP	0	5%	1/10W
JR306	1-216-295-00	METAL CHIP	0	5%	1/10W
JR307	1-216-295-00	METAL CHIP	0	5%	1/10W
JR308	1-216-295-00	METAL CHIP	0	5%	1/10W
JR309	1-216-295-00	METAL CHIP	0	5%	1/10W
JR310	1-216-295-00	METAL CHIP	0	5%	1/10W
JR311	1-216-295-00	METAL CHIP	0	5%	1/10W
JR312	1-216-295-00	METAL CHIP	0	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
JR313	1-216-295-00	METAL CHIP	0	5%	1/10W
JR314	1-216-295-00	METAL CHIP	0	5%	1/10W
JR315	1-216-295-00	METAL CHIP	0	5%	1/10W
JR316	1-216-295-00	METAL CHIP	0	5%	1/10W
JR317	1-216-295-00	METAL CHIP	0	5%	1/10W
JR318	1-216-295-00	METAL CHIP	0	5%	1/10W
JR319	1-216-295-00	METAL CHIP	0	5%	1/10W
JR320	1-216-295-00	METAL CHIP	0	5%	1/10W
JR321	1-216-295-00	METAL CHIP	0	5%	1/10W
JR322	1-216-295-00	METAL CHIP	0	5%	1/10W
JR323	1-216-296-00	METAL CHIP	0	5%	1/8W
JR324	1-216-296-00	METAL CHIP	0	5%	1/8W
JR325	1-216-296-00	METAL CHIP	0	5%	1/8W
JR326	1-216-296-00	METAL CHIP	0	5%	1/8W
JR327	1-216-296-00	METAL CHIP	0	5%	1/8W
JR328	1-216-296-00	METAL CHIP	0	5%	1/8W
JR329	1-216-296-00	METAL CHIP	0	5%	1/8W
JR330	1-216-296-00	METAL CHIP	0	5%	1/8W
JR331	1-216-296-00	METAL CHIP	0	5%	1/8W
JR332	1-216-296-00	METAL CHIP	0	5%	1/8W
JR333	1-216-296-00	METAL CHIP	0	5%	1/8W
JR334	1-216-296-00	METAL CHIP	0	5%	1/8W
M901	8-835-104-01	MOTOR, DC (DNR-5700A)			
MIC901	8-814-185-00	MICROPHONE UNIT (C-1013)			
MIC902	8-814-185-00	MICROPHONE UNIT (C-1013)			
Q301	8-729-159-64	TRANSISTOR 2SD596			
Q302	8-729-900-52	TRANSISTOR DTC114YK			
Q303	8-729-900-52	TRANSISTOR DTC114YK			
Q304	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q305	8-729-900-52	TRANSISTOR DTC114YK			
Q308	8-729-901-46	TRANSISTOR DTA114YK			
Q309	8-729-901-46	TRANSISTOR DTA114YK			
Q310	8-729-900-52	TRANSISTOR DTC114YK			
Q311	8-729-901-46	TRANSISTOR DTA114YK			
Q312	8-729-271-22	TRANSISTOR 2SC2712G			
Q601	8-729-374-02	TRANSISTOR 2SB740			
R101	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R102	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R103	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-041-00	METAL CHIP	470	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R108	1-216-097-00	METAL CHIP	100K	5%	1/10W
R109	1-216-109-00	METAL CHIP	330K	5%	1/10W
R111	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R112	1-216-073-00	METAL CHIP	10K	5%	1/10W
R113	1-216-306-11	METAL CHIP	3.9	5%	1/10W
R201	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R202	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R203	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R204	1-216-073-00	METAL CHIP	10K	5%	1/10W
R205	1-216-041-00	METAL CHIP	470	5%	1/10W
R206	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R207	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R208	1-216-097-00	METAL CHIP	100K	5%	1/10W
R209	1-216-109-00	METAL CHIP	330K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R211	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R212	1-216-073-00	METAL CHIP	10K	5%	1/10W
R213	1-216-140-00	METAL CHIP	3.9	5%	1/8W
R301	1-216-049-00	METAL CHIP	1K	5%	1/10W
R302	1-216-133-00	METAL CHIP	3.3M	5%	1/10W
R304	1-216-027-00	METAL CHIP	120	5%	1/10W
R305	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R306	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R307	1-216-073-00	METAL CHIP	10K	5%	1/10W
R308	1-216-041-00	METAL CHIP	470	5%	1/10W
R310	1-216-081-00	METAL CHIP	22K	5%	1/10W
R311	1-216-010-00	METAL CHIP	24	5%	1/10W
R312	1-216-005-00	METAL CHIP	15	5%	1/10W
R313	1-216-001-00	METAL CHIP	10	5%	1/10W
R316	1-216-075-00	METAL CHIP	12K	5%	1/10W
R318	1-216-073-00	METAL CHIP	10K	5%	1/10W
R319	1-216-073-00	METAL CHIP	10K	5%	1/10W
R320	1-216-043-00	METAL CHIP	560	5%	1/10W
R337	1-216-049-00	METAL CHIP	1K	5%	1/10W
R601	1-216-136-00	METAL CHIP	2.7	5%	1/8W
R603	1-216-081-00	METAL CHIP	22K	5%	1/10W
R606	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R607	1-216-045-00	METAL CHIP	680	5%	1/10W
R608	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
RV301	1-230-327-11	RES, VAR, CARBON 10K/10K (VOLUME)			
RV601	1-230-888-11	RES, VAR, CARBON 20K (SPEEDCONTROL)			
RV602	1-230-600-11	RES, ADJ, CARBON 20K			
S301	1-554-745-11	SWITCH, SLIDE (REC/PB)			
S302	1-570-114-11	SWITCH, SLIDE (PB.EQ)			
S303	1-553-510-00	SWITCH, SLIDE (PAUSE)			
S304	1-554-297-00	SWITCH, LEAF (POWER)			
SP901	1-503-552-11	SPEAKER			
T301	1-433-251-00	TRANSFORMER, BIAS OSCILLATOR			
TH601	1-806-716-00	THERMISTOR			
THP601	1-806-800-11	THERMISTOR (POSITIVE)			

ACCESSORY & PACKING MATERIAL

Part No.	Description
3-313-536-01	SPACER
3-313-542-01	(US).....INDIVIDUAL CARTON
3-313-543-01	(Canadian,AEP,UK,E)...INDIVIDUAL CARTON
3-313-546-01	CUSHION
3-313-566-01	CASE, CARRYING
3-570-631-61	BAG, POLYETHYLENE
3-701-622-00	(US,Canadian,UK)...BAG, POLYETHYLENE
3-760-777-11	(AEP,E).....MANUAL, INSTRUCTION
3-760-777-21	(US,Canadian,UK)...MANUAL, INSTRUCTION
3-760-777-31	(Canadian).....MANUAL, INSTRUCTION
3-760-777-41	(UK).....MANUAL, INSTRUCTION
3-795-748-21	(US)....SAFETY INSTRUCTIONS, HEADPHONE
8-952-201-90	MDR-03L/J SET

9-951-888-11

Sony Corporation

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